

The Trechid Beetles of the Ryukyu Islands

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The Ryukyu Archipelago, stretching in an arc for about 1,200 km between Kyushu and Taiwan, consists of a chain of numerous small islands that fringe a part of the eastern edge of the continental shelf of Asia. Geographically, these islands are divided into six groups, namely, Ohsumi, Tokara, Amami, Okinawa, Miyako and Yaéyama groups, ranging from northeast to southwest. The northernmost of them, the Ohsumi group, lies just south of Kyushu and is separated from the others both topographically and zoogeographically. All the other groups are formed by low subtropical islands of various size, and though several large ones and a few volcanic islets are mountainous, even the highest point, which is in the Island of Naka-no-shima, attains merely to 979 m above sea-level.

These islands are noted for their interesting fauna and have been the subject of many zoological investigations. Trechid beetles are, however, not numerous, probably due to the subtropical condition of climate and/or to the absence of favourable streams. Only three species of them have hitherto been recorded from the Ryukyus. They are *Epaphiopsis janoi* (JEANNEL) (1937, p. 82), *Trechoblemus microphthalmus* S. UÉNO (1955 b, p. 404) and *Perileptus japonicus* H. W. BATES (MASIDA, 1954, p. 1). The first species is saprophilous and endemic to the Island of Yaku-shima of the Ohsumi group. The second species is hygrophilous, having been known only from the Island of Takara-jima of the Tokara group. The third is a widespread species and though first recorded from the Island of Amami-Oshima, it is known at present from six islands belonging to five different groups.

In recent years, three more species of the subfamily have been found in the Ryukyus. One of them is apparently endemic to the Island of Yaku-shima, while the other two occur in the central Ryukyus and the Yaéyama group respectively. To make the list of the Ryukyuan trechids complete, it is necessary to give accounts of all these species. However, the trechid fauna of the Island of Yaku-shima is closely related to that of southern Kyushu and is decidedly different from that of the other parts of the Ryukyu Archipelago. It is for this reason that I have excluded the endemic forms of Yaku-shima from the present paper. Thus, only four species are to be dealt with in the following pages.

The abbreviations used are as follows: AL — length of antennae; HW — greatest width of head, including eyes; PW — greatest width of pronotum; PL — length of pro-

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notum, measured along the mid-line; PA — width of pronotal apex; PB — width of pronotal base; EW — greatest width of elytra; EL — greatest length of elytra; M — arithmetic mean; NSMT — National Science Museum, Tokyo; MCZ — Museum of Comparative Zoology, Harvard University, Cambridge; TS — Mr. Taichi SHIBATA's collection.

Before going further, I wish to express my hearty thanks to Professor P. J. DARLINGTON, JR., Mr. Taichi SHIBATA and Mr. Masataka SATÔ for their kind support of the present study. Thanks are also due to Dr. Børge PETERSEN for kindly submitting to my study the *Perileptus* specimens obtained by the Danish Noona Dan Expedition to the Southwest Pacific.

***Perileptus* (s. str.) *japonicus* H. W. BATES, 1873**

Perileptus Japonicus H. W. BATES, 1873, Trans. ent. Soc. London, 1873, p. 296; type-locality: Hiogo.

Perileptus (s. str.) *japonicus*: JEANNEL, 1926, Abeille, Paris, 32, pp. 406, 414, figs. 188–189. —

MASIDA, 1954, Rept. Res. Masuda Indus. High School, (2), p. 1, fig. 1, p. 5, fig. upper left.

Other references are omitted.

Specimens examined. 1♂, Is. Takara-jima, Tokara group, 2–VII–1960, M. SATÔ leg. (NSMT); 1♂, Shinmura, Is. Amami-Oshima, 12–VI–1962, M. SATÔ leg. (NSMT); 1♂, 1♀, Shinmura, Is. Amami-Oshima, 18–VII–1962, N. OHBAYASHI leg. (NSMT); 2♂♂, 2♀♀, Hatsuno, Is. Amami-Oshima, 4–IV–1966, T. ITO leg. (NSMT & TS); 1♂, 2♀♀, Kametsu, Is. Toku-no-shima, 27–III–1966, T. ITO leg. (NSMT & TS); 1♀, Yona, Kunigami-son, Is. Okinawa-hontô, 9–V–1963, H. NOMURA leg. (NSMT); 6♂♂, 2♀♀, Yona-gawa River, Yona, Kunigami-son, Is. Okinawa-hontô, 5–VIII–1972, S. UÉNO leg. (NSMT); 1♂, Takazato-gawa River, Takazato, Ohgimi-son, Is. Okinawa-hontô, 5–VIII–1972, S. UÉNO leg. (NSMT); 1♂, Genka-gawa River, Genka, Haneji, Nago-shi, Is. Okinawa-hontô, 5–VIII–1972, S. UÉNO leg. (NSMT); 1♂, Shirahama, Is. Iriomoté-jima, Yaéyama group, 27–VII–1965, M. YASUI leg. (NSMT).

Notes. This species is widely distributed in the Far East and seems to occur in many of the large islands of the Ryukyus. Its distributional range does not appear to extend southwards to Southeast Asia nor even to southern China. JEANNEL recorded it from Hongkong and Celebes (1926, p. 415) and also from Turkestan (1935, p. 273), but according to my re-examination of his specimens made in Leningrad, London and Paris, these records are not correct, having been derived either from his misidentification or from his mistreatment of the specimens in question.

The specimens from the islands of the central Ryukyus are slightly different from those of the Japanese mainland in that the eyes are usually a little smaller, that the genae are somewhat longer and a little more oblique, and that the pronotum is as a rule more regularly cordate. However, these differences are not decisive, and the Iriomoté-jima specimen cited above is identical with mainland individuals. It is possible that the first step of riation of *P. japonicus* is taking place in the central Ryukyus, but the differentiation does not seem to attain to the subspecies level.

***Perileptus* (s. str.) *asahinai* S. UÉNO, sp. nov.**

(Figs. 1-2)

Perileptus sp.: LOUWERENS, 1967, Ent. Medd., **35**, p. 198.

Length: 2.05–2.40 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *P. morimotoi* S. UÉNO (1955 a, p. 338, figs. 1–2), but the eyes are much larger, the genae are very short and not oblique, the pronotum is less transverse, the elytral striae are deeper, and the body surface is shiny because of much finer and partially obliterated microsculpture.

Body elongate and depressed, with fully developed hind wings. Colour blackish brown, shiny; mandibles, labrum, clypeus, antennae (except for two proximal segments), propleura and epipleura reddish brown; palpi, two proximal segments of antennae, and legs pale yellowish brown.

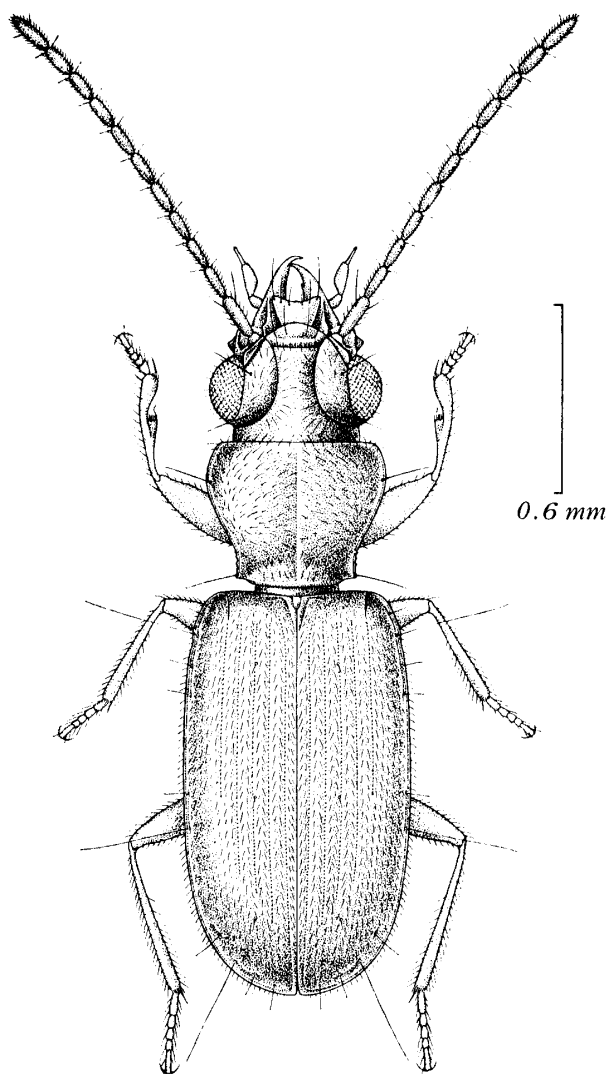


Fig. 1. *Perileptus* (s. str.) *asahinai* S. UÉNO, sp. nov., ♂, of the Nakara-gawa River in Is. Iriomoté-jima,

Head transverse, with very large, protruding eyes and deep curved frontal furrows, the latter of which are gently divergent anteriorly; frons and supraorbital areas moderately convex and covered with fairly long pubescence; genae very short and nearly transverse; neck constriction deep at the lateral sides; clypeus with distinct central tubercle; labrum widely emarginate at apex and obtusely tuberculate at the middle of apical emargination; antennae stout, subfiliform, usually extending beyond basal one-third of elytra in ♂ but only reaching that level in ♀, AL/EL 0.97–1.01 (M 0.99) in ♂, 0.92–0.95 (M 0.93) in ♀, with median segments about twice as long as wide.

Pronotum cordate, widest at about five-sevenths from base and contracted posteriorly; PW/HW 1.02–1.08 (M 1.06), PW/PL 1.17–1.24 (M 1.21), PW/PA 1.23–1.34 (M 1.29), PW/PB 1.45–1.54 (M 1.50); surface covered with suberect pubescence, moderately convex but more or less depressed on the disk and with a shallow longitudinal impression along the median line, which is distinct though not widening basally; sides narrowly bordered throughout, gently arcuate in front, distinctly, though not deeply, sinuate at about one-fifth from base, and more or less distinctly indented behind the sinuation; apex nearly straight and obviously wider than base, PA/PB 1.10–1.21 (M 1.16); front angles rounded and hardly advanced; hind angles small, usually denticulate though sometimes rectangular; base nearly straight at middle, oblique and slightly emarginate on each side; basal transverse impression shallow and mal-defined, basal foveae fairly deep; disk rather closely punctate, basal area narrow and more or less uneven.

Elytra elongate and nearly parallel-sided, being widest around middle; EW/PW 1.27–1.35 (M 1.30), EL/EW 1.69–1.79 (M 1.74); disk flat except for sutural interval which is slightly raised at the median part; shoulders square, with transverse base; sides narrowly bordered, only very feebly arcuate; apices almost conjointly rounded though forming a very small re-entrant angle at the suture; striae indistinctly punctate, moderately impressed on the disk but obsolete at the side, stria 1 entire, 2–5 disappearing towards apex, 5 briefly deepening near base, 6–8 evanescent; intervals slightly convex on the disk, all closely covered with piliferous punctures; stria 3 with three setiferous dorsal pores as usual though inconspicuous.

Microsculpture largely consisting of irregular polygonal meshes, which are fairly distinct on elytra, more or less deformed and partially replaced by irregular transverse lines on pronotum, and obsolete on frons, though reticulate microsculpture exists on vertex and supraorbital areas.

Legs short and stout; protibiae slightly bowed and widely dilated towards apices.

Male genital organ very small and poorly sclerotized except for the ventral side of aedeagus. Aedeagus short, about two-sevenths as long as elytra, and dilated towards large apical orifice; apex produced into a short lobe; basal part relatively long, abruptly bent towards the ventral side; dorsal side largely membranous in basal half; ventral side more or less arcuate in profile, but the curvature varies to some extent according to individuals. Styles small and short, each provided with two apical setae.

Type-series. Holotype: ♂, allotype: ♀, paratypes: 17♂♂, 13♀♀, 7-X-1963, S. UENO leg. (NSMT); 1♀, 5-X-1963, K. MORIMOTO leg. (NSMT). Some of the paratypes are

distributed to other museums in Europe and U.S.A.

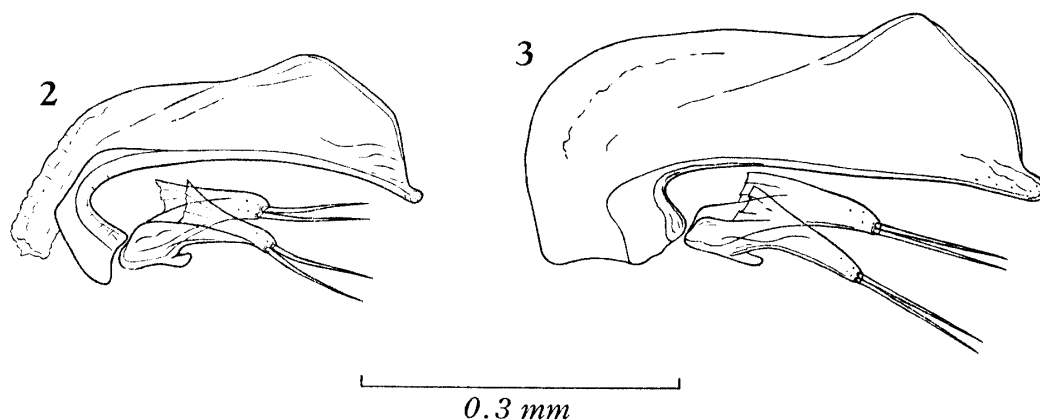
Type-locality. Nakara-gawa River, at the southwestern part of the Island of Iriomoté-jima of the Yaéyama group, southern Ryukyus.

Further specimens examined. 1♂, Brookes Point, Uring Uring, Palawan, Philippines, 21–VIII–1961, B. PETERSEN leg. (Universitetets Zoologiske Museum, Copenhagen); 1♀, same locality, 14–VIII–1961, B. PETERSEN leg. (NSMT).

Notes. Like *P. morimotoi*, this new species is strictly halophilous and intertidal. Its habitat is found only in such a place where a freshwater stream flows into the sea. In the Island of Iriomoté-jima, it was found at a spot about 7 km up the Nakara-gawa River southeast to the village of Shirahama. Although it is called a river, this part of the Nakara-gawa can be regarded as a narrow winding bay, since it is so practically level that the tide flows in and out up to that spot. Thus, the place under consideration forms an actual estuary of a brook. The beetle dwells among gravel coexisting with an undescribed species of *Armatocillenus*, and is active while the tide is low. It can fly well despite of being an intertidal inhabitant, and readily takes wing if disturbed. When the tide rises, it takes refuge under stones, remains submerged at the depth of 1 m or more, and waits for the next ebb.

The Palawan specimens were caught by a mercury light between 7 and 9 o'clock in the evening, but here again they were taken together with many specimens of *Armatocillenus yokohamae* (cf. LOUWERENS, 1967, p. 196). Therefore, it can be surmised with confidence that their habitat is similar to that in Iriomoté-jima. They are slightly different from the type-series in having somewhat wider pronotal apex, but are otherwise identical with the latter. The standard ratios of their body parts are as follows: AL/EL 0.97 in ♂, 0.94 in ♀, PW/HW 1.07, PW/PL 1.22–1.24, PW/PA 1.22–1.23, PW/PB 1.50–1.54, PA/PB 1.22–1.27, EW/PW 1.29, EL/EW 1.66–1.74.

The type-series of the present species was discovered by an expedition of the Japan–U.S. Co-operative Science Programme under the leadership of Dr. Syoziro ASAHINA, to whom its species name is dedicated.



Figs. 2–3. Male genitalia, left lateral view. — 2. *Perileptus* (s. str.) *asahinai* S. UÉNO, sp. nov., of the Nakara-gawa River in Is. Iriomoté-jima — 3. *P.* (s. str.) *laticeps ryukyuensis* S. UÉNO, subsp. nov., of Hatsuno in Is. Amami-Oshima,

***Perileptus* (s. str.) *laticeps ryukyuensis* S. UÉNO, subsp. nov.**

(Fig. 3)

Length: 2.75–2.80 mm (from apical margin of clypeus to apices of elytra).

Smaller than the nominate subspecies (UÉNO, 1955 a, pp. 338, 340, figs. 4–6) on an average, and readily distinguished from the latter by the following points: antennae in ♂ a little longer; eyes smaller; genae obviously longer and more strongly convex; pronotum widest at a level less close to apex, more distinctly contracted anteriorly and less so posteriorly, with the side more strongly arcuate from front angle to ante-basal sinuation, which is a little wider.

Colour as in the nominate subspecies. Head with broader supraorbital areas than in the nominate subspecies; eyes small though moderately convex; genae remarkably developed, usually about two-fifths as long as eyes but sometimes four-ninths as long as the latter, subangulately convex and provided with long hairs, with the posterior side nearly transverse; central tubercle in the apical emargination of labrum less remarkable than in the nominate subspecies; antennae reaching the middle of elytra in ♂, basal two-fifths of elytra in ♀, AL/EL 1.14–1.17 in ♂, 1.01–1.09 (M 1.06) in ♀. Pronotum cordate, widest at about five-sevenths from base and more strongly contracted posteriorly than anteriorly; PW/HW 1.02–1.06 (M 1.04), PW/PL 1.19–1.24 (M 1.22), PW/PA 1.28–1.33 (M 1.31), PW/PB 1.46–1.52 (M 1.49); surface moderately convex though more or less depressed on the disk, more evenly convex than in the nominate subspecies; sides moderately arcuate from front angles to ante-basal sinuation, which is at about one-sixth from base and not so brief as in the nominate subspecies; hind angles small but acute, projecting laterad; base narrower than apex but not so narrow as in the nominate subspecies, PA/PB 1.10–1.18 (M 1.14). Elytra relatively short on an average and widest at about four-sevenths from base, but otherwise similar to those in the nominate subspecies; EW/PW 1.25–1.36 (M 1.31), EL/EW 1.65–1.74 (M 1.70). Microsculpture as in the nominate subspecies, but more indistinct even on elytra. Aedeagus as in the nominate subspecies, about two-sevenths as long as elytra; each style with two apical setae.

Type-series. Holotype: ♂, allotype: ♀, 4–IV–1966, T. ITO leg. (NSMT). Paratypes: 1♂, 4♀♀, same data as the holotype (NSMT & TS).

Type-locality. Hatsuno, about 30 m in altitude, Setouchi-chō, at the southwestern part of the Island of Amami-Oshima, central Ryukyus.

Further specimens examined. 6♂♂, 2♀♀, Nakadomari,¹⁾ Onna-son, Is. Okinawa-hontō, central Ryukyus, 27–IX–1945, F. G. WERNER leg. (NSMT & MCZ).

Notes. In the Okinawa specimens, which measure 2.35–2.80 mm in the length of body, the male antennae are somewhat shorter than in the type-series, reaching basal four-ninths of the elytra, and the genae are almost always four-ninths as long as the eyes. The standard ratios of their body parts are as follows: AL/EL 1.08–1.11 (M 1.10) in ♂, 1.02 in ♀, PW/HW 1.04–1.07 (M 1.06), PW/PL 1.22–1.26 (M 1.23), PW/PA 1.26–1.36 (M 1.30), PW/PB 1.42–1.50 (M 1.47), PA/PB 1.08–1.18 (M 1.13), EW/PW 1.25–1.31 (M 1.28),

1) Spelled as 'Nakadomaru' on the labels attached to the specimens.

EL/EW 1.67–1.75 (M 1.70).

The Amami specimens were taken from under stones at the edge of a mountain stream. The Okinawa specimens were found 'floating on swift stream'. I searched for this spot in the vicinities of Nakadomari, but failed in finding it out.

***Trechoblemus microphthalmus* S. UÉNO, 1955**

Trechoblemus microphthalmus S. UÉNO, 1953, Shin Konchû, Tokyo, 6 (11), p. 43 [*nom. nud.*]; 1955, Publ. Seto Mar. Biol. Lab., 4, p. 404, fig. 1; type-locality: Ôiké on Is. Takarajima. — JEAN-NEL, 1962, Rev. fr. Ent., 29, p. 199.

Notes. This species is included in the present paper for completing the list of Trechinae from the Ryukyu Islands. It has been known only by the type-series obtained in the Island of Takara-jima belonging to the Tokara group, though it may occur also in the Island of Amami-Oshima. In any case, it is the unique species endemic to the central Ryukyus.

This interesting trechine is a member of the group of *T. postilenatus*, which includes all the described species of the genus except for *T. micros* (HERBST) (UÉNO, unpublished), and whose members are distributed over eastern China, Korea, the mainland of Japan and northwestern North America. From the other species of the same species-group, it is readily distinguished by its small size, degenerated eyes and atrophied hind wings. All these characteristics seem to indicate that the beetle is an insular form and is adapted to a considerable extent to subterranean habitats. It can be regarded as a relict isolated long in the central Ryukyus.

Zoogeographic Notes

The most prominent feature of the trechid fauna of the Ryukyu Islands, exclusive of the Ohsumi group, is that it is poor in the variety of components and consists of only such species as are winged and hygrophilous. It is true that *Trechoblemus microphthalmus* is flightless, but the trechine still retains reduced hind wings and is considered to be of a recent origin. In fact, all the other known species of the group of *T. postilenatus*, to which *T. microphthalmus* belongs, are fully winged and can fly well. Neither saprophilous nor endogean nor cavernicolous forms have been known from the Ryukyus, although many islands are densely forested and some contain numerous limestone caves. This makes the Ryukyuan fauna remarkably monotonous.

Such sterility is emphasized when the trechid faunas are compared between the three areas, the Ryukyus, Kyushu and Taiwan. The Ryukyus lie between the latter two and have served either as a corridor or as stepping stones for the dispersal of many animals and plants. So far as the trechid beetles are concerned, however, this archipelago harbour only four known species belonging to two genera. Forming a sharp contrast to this, the trechid fauna of Kyushu consists of about three dozen species distributed to nine different genera. Some three-fifths of them are troglobiontic and one-sixth are either saprophilous

or scotophilous. Only the remaining six species, four *Perileptus*, one *Trechoblemus* and one *Lasiotrechus*, are hygrophilous lowland forms that are comparable to the Ryukyuan species. The trechid fauna of Taiwan is not yet fully known, but at least ten species belonging to four different genera have been obtained in that island by my collectings. More than a half of them are found only at high altitudes, members of *Perileptus* being the sole inhabitants of low places. Incidentally, no cave-dwelling trechines have been met with in Taiwanese caves, which are few and scattered.

Needless to say, there is a considerable difference in area between the Ryukyus and the other two islands, but the limitation of area does not appear to be the main cause for the meagreness of trechids in the island chain. This is readily inferred from the fact that two endemic saprophilous species occur in the Island of Yaku-shima of the Ohsumi group. Their ancestors must have come from Kyushu, settled there, and become differentiated after the separation of Yaku-shima from the mainland. The island is mountainous, attaining to the height of 1,935 m, and is densely covered with temperate forests. Therefore, it has offered an ideal place for the speciation of saprophilous trechines of northern origin. On the other hand, the main parts of the Ryukyus, from the Tokara group in the northeast to the Yaeyama group in the southwest, are rather uniform in relief. Some of the islands are mountainous and the others are flat, but even those of the former type are not remarkably elevated. Thus, the central and southern parts of the Ryukyus are largely subtropical in climate and hardly favourable for the existence of trechid beetles of the tribe Trechini, which are adapted to cool-temperate. The only exception is a few volcanic islets of the Tokara group, but they are relatively recent and do not seem to be inhabited by specialized trechines.

Next to be considered is the zoogeographic importance of the Tokara Straits, stressed by the distributional pattern of land vertebrates. The straits lie between the Ohsumi and the Tokara groups, and have existed at least since the late Tertiary. The southward dispersal on land of ancestral trechines was doubtless barred by this sea barrier, and though some of them reached Yaku-shima, they could not have crossed the Tokara Straits. Moreover, there are important physical factors against the southward dispersal of trechid beetles. They are the Black Current, prevailing summer winds and typhoon tracks, all of which are directed northwards.

On the other hand, all these factors favourably affect the northward dispersal of winged trechids of southern origin. The three Ryukyuan species of *Perileptus* typically fall under this category. The genus has originated in the Old World tropics and radiated from there. All the known species of the genus are fully winged and readily take wing both in the daytime and at night. All the species found in the Ryukyus are more or less widely distributed. *Perileptus japonicus* spreads all over East Asia, including eastern China, the Japanese Islands, Korea and eastern Siberia; *P. laticeps ryukyuensis* is endemic to the central Ryukyus, but its nominate subspecies is widely distributed in the three main islands of Japan and the Islands of Tsushima, and its relatives occur in many parts of southern Asia and also in the New Hebrides (*P. laruei* JEANNEL); *P. asahinai* is known from the southern Ryukyus and Palawan, and presumably occurs in the other islands of the Philip-

pinus.

For all these species, a land bridge is not necessary to expand their ranges. They are particularly good at sweepstakes dispersal. Both *P. japonicus* and *P. laticeps*, which live along the edges of running waters, seem to have reached the Ryukyus by flight. When rivers are flooded, they normally fly to escape rising water. If the flood is caused by a typhoon, they are easily carried away by the strong wind. Thus, the Ryukyu Islands must have been exposed to continual invasions of newcomers from Taiwan or eastern China, especially when the East China Sea was much narrower than it is at present. We cannot deny the possibility of tidal transportation of their ancestors on drifting masses of vegetation, but winds may be the main factor that has contributed to their dispersal into the Ryukyus. Such straying individuals have not established permanent populations in many of flat islands, since habitable places are much limited there. For instance, the Island of Miyako-jima, though fairly wide in area, may not have been colonized by perileptines because of the lack of surface streams. On the other hand, the perileptine populations of the central Ryukyus seem to have been isolated, if not completely, for some time. This has produced a distinctive geographical race of *P. laticeps* and slightly but recognizably differentiated population of *P. japonicus*.

Perileptus asahinai shows a different type of distribution. Though being a good flyer, this minute species is halophilous in nature. It is restricted to estuaries and does not usually leave the intertidal zone, where it spends a kind of amphibious life. Because of this specific ecological requirement, the perileptine is found only in limited spots within its range. Consequently, its distribution is discontinuous and is much affected by tidal currents. So far as I know, only three halophilous species have been found among perileptines. One of them is *P. morimotoi*, which is distributed on the Pacific side of Southwest Japan, from central Kyushu in the west to the Kii Peninsula in the east. Another is *P. asahinai* described in this paper. The other species occurs in the Southwest Pacific, from Morotai of the Moluccas in the northwest to Guadalcanal of the Solomons in the southeast. It was tentatively identified by DARLINGTON (1962, p. 489) with *P. japonicus*, but it is actually a new species very closely related to *P. asahinai* (UÉNO, unpublished). These three halophilous species are closely allied to one another and form a compact group within the genus. They are doubtless derived from a common ancestor and have spread along the fringing islands of the West Pacific, most probably carried by ocean currents.

Contrary to the perileptines, *Trechoblemus microphthalmus* is of northern origin. It is the unique trechid endemic to the central Ryukyus, but its direct relatives occur both in eastern China and the mainland of Japan. Which of these is closer to the brachypterous Ryukyuan species, it is difficult to determine, since all the winged members of the group of *T. postilenatus* are very closely allied to one another. However, the fully winged ancestor of *T. microphthalmus* must have reached the Island of Takara-jima across the sea. This means that invasion from Kyushu must have been extremely difficult, since it is against the direction of wind and tidal currents. Perhaps the ancestral trechine was carried by wind across the East China Sea from somewhere in eastern China. It is apparent that the sweepstakes dispersal from the continent was much easier in the past than the present,

since the water gap between China and Ryukyu was very narrow, for instance, in the early Pleistocene.

To conclude, all the trechids known from the Ryukyus seem to have reached there by sweepstakes dispersal. One of them (*T. microphthalmus*) becomes differentiated to the species level, and another (*P. laticeps ryukyuensis*) to the subspecies level. These endemic forms may have entered the Ryukyus earlier than the remaining two. *Perileptus japonicus* seems to have reached the Ryukyus at various times, all probably from eastern China. Its population of the central Ryukyus may be the oldest, since it shows a slight geographical differentiation. It is difficult to determine when the colonization of *P. asahinai* occurred in the southern Ryukyus, although in all probability, this halophilous species seems to have come from the Philippines.

要 約

大隅群島を除く琉球列島からこれまでに見つかったチビゴミムシ類は、わずかに2属4種しかない。そのうちの3種はホソチビゴミムシ属 *Perileptus* のもので、他の1種は、アトスジチビゴミムシ属 *Trechoblemus* のトカラチビゴミムシ *T. microphthalmus* S. UÉNO である。ホソチビゴミムシ類のうちでは、東アジアに広く分布するホソチビゴミムシ *P. japonicus* H. W. BATES のみが既知で、残りの2種はそれぞれ新種および新亜種と認められる。これらには、アサヒナホソチビゴミムシ *P. asahinai* S. UÉNO およびリュウキュウホソチビゴミムシ *P. laticeps ryukyuensis* S. UÉNO という新名を与え、この論文で記載した。

アサヒナホソチビゴミムシは、西表島の仲良川で発見されたが、フィリピンのパラワン島にも分布する。九州から紀伊半島にかけての太平洋岸に分布し、比較的大きい河川の河口部に限って生息するウミホソチビゴミムシ *P. morimotoi* S. UÉNO に類縁が近く、やはり河口部の潮間帯にすんでいる。本土の種とのおもな差異は、複眼がひじょうに大きくて頬部がほとんど認められない点と、体表の微細彫刻がいちじるしく減退していることとにある。近縁種は南西太平洋にもうひとつあり、全体として、太平洋の西側を取り巻くような形の分布模様を示している。リュウキュウホソチビゴミムシのほうは、本州、四国、九州および対馬に広く分布するオオホソチビゴミムシ *P. laticeps* S. UÉNO の亜種で、奄美大島と沖縄本島とから見つかる。基亜種との差異は、複眼の大きさ、頬部の発達の程度、前胸背板の形状などに明らかに見られる。近縁種はアジア南部に広く分布し、そのひとつは遠くニューヘブリディーズ諸島に達している。

これら4種のチビゴミムシ類に共通する特徴は、どの種も水辺で生活し、トカラチビゴミムシ以外の3種がよく発達した後翅をそなえていることである。トカラチビゴミムシも、飛翔に役立たぬ程度には萎縮しているものの、なお原形を残した後翅をもち、島嶼型としての歴史がそれほど古いものではないことを思わせる。したがって、これらの種の祖先型は、陸橋を伝って琉球に分布したものではなく、偶然の力に運ばれて琉球に定着したものと考えてよからう。アサヒナホソチビゴミムシは、おそらくフィリピンから海流に運ばれて八重山群島に拡散したものであり、他の3種は、たぶん東シナから風に運ばれて琉球に侵入したものであろう。九州方面から吐噶喇海峡を越えて琉球へ拡がったと考えられる種がひとつもなく、風や海流などの進路がすべて北へ向かっていることも、このような推定の裏付けになる。

奄美・沖縄の両群島で、オオホソチビゴミムシが特別の亜種に分化し、ホソチビゴミムシのほうもある程度の固有化現象を示していることから考えると、琉球の中央部は比較的早い時期から隔離されていた、とみてよからう。琉球唯一の固有種であるトカラチビゴミムシも、今のところ吐噶喇群島の宝島でしか見つからない。これらの種の祖先は、東シナ海が現在より狭かった過去の時代に琉球中央部へ渡って、そこに隔離され、分化してきたものであろう。同じホソチビゴミムシでも、八重山群島や大隅群島のものは、これらの島じまが琉球列島の両端に位置するにもかかわらず、地理的な変異を示さない。これらの島じまの個体群

は、中央部のものより遅れて定着したか、あるいは、大陸や日本本土からの新しい侵入者とのあいだにたえず交雑を行ってきたものと考えられる。潮間帯にすむアサヒナホソチビゴミムシは、西表島とパラワン島とのあいだでほとんど変異を示さない。したがって、比較的新しい時代の移住者とみてよからう。

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